

Daniel O'Conner Peluso

Astrophysics PhD Candidate, Exoplanet Researcher, & Educator

Vallejo, California, USA | +1-707-334-2021 | dpeluso@seti.org | orcid.org/0000-0002-9427-0014 | astropartydan.com/

Education

PhD, Astrophysics

University of Southern Queensland

Expected PhD Conferral: Early 2024

M.Ed., Science Curriculum & Instruction

University of San Diego

08/2017

B.S. Planetary Science

University of Pittsburgh (Graduated Cum Laude)

04/2016

Research Experience

PhD Thesis by Publication Research

University of Southern Queensland

07/2019 - Present

Thesis: Democratizing & Expanding Exoplanet Follow-up with the Unistellar Citizen Science Network & Astronomy Modeling Instruction

Advisors: Brad Carter, Duncan Wright, Carl Pennypacker, Franck Marchis, and Colleen Megowan-Romanowicz

Affiliate Researcher

SETI Institute

09/2023 - Present

Focus: Exoplanets and citizen science

Astronomy Modeling Instruction Researcher

American Modeling Teachers Association

07/2019 - Present

Mentor: Colleen Megowan-Romanowicz

Focus: Astronomy Modeling Instruction for exoplanets

Unistellar Education Associate & Exoplanet Research Assistant

SETI Institute

10/2020 - 08/2023

Mentors: Franck Marchis, Tom Esposito, Paul Dalba

Focus: Exoplanets, citizen science, and citizen science astronomy education integration

Unistellar Exoplanet Research Assistant

Unistellar

07/2019 - 10/2020

Mentors: Franck Marchis and Tom Esposito

Focus: Develop Unistellar exoplanet citizen science network

Research Assistant, Martian Meteorites (NASA Space Grant)

University of Pittsburgh Geology Department

08/2015 - 04/2016

Mentor: Brian Balta

Focus: Shergottite martian meteorites in magma chambers

Geoscience Data Specialist & Mickey Leland Energy Fellow

National Energy Technology Laboratory (NETL)

06/2015 - 06/2016

Mentor: Kelly Rose

Focus: Geoscience sample repositories and database systems

Research Publications: In Prep or Peer-Review

Peluso, Daniel O., Dalba, Paul A., Wright, Duncan, Esposito, Thomas M. . . . U.C. Scientists. *Confirming the Warm and Dense Sub-Saturn TIC 139270665 b with the Automated Planet Finder and the Unistellar Citizen Science Network and AstroReMixEd*, currently **in peer-review** with the Astronomical Journal (AJ).

Peluso, Daniel O., Megowan-Romanowicz, C. *Astronomy Modeling Instruction with Exoplanets: Motivating Science Teaching and Learning in the 21st Century*, currently **in peer-review** with the Journal of Science Teacher Education (JSTE).

Research Publications

[Google Scholar Profile](#)

- Peluso, Daniel O.**, Esposito, T. M., Marchis, F., Dalba, P. A., Sgro, L., Megowan-Romanowicz, C., ... & Scientists, U. C. (2023). The Unistellar Exoplanet Campaign: Citizen Science Results and Inherent Education Opportunities. *Publications of the Astronomical Society of the Pacific*, 135(1043), 015001. doi: [10.1088/1538-3873/acaa58](https://doi.org/10.1088/1538-3873/acaa58)
- Sgro, L. A., Esposito, T. M., Blaclard, G., Gomez, S., Marchis, F., Filippenko, A. V., **Peluso, D.O.**, ... Arnaud, Y. (2023). Photometry of Type II Supernova SN 2023ixf with a Worldwide Citizen Science Network. *Research Notes of AAS*, 7(7), 141. doi:[10.3847/2515-5172/ace41f](https://doi.org/10.3847/2515-5172/ace41f)
- Graykowski, A., Lambert, R. A., Marchis, ... **Peluso, D.**, ..., & Transom, I. M. (2023). Light Curves and Colors of the Ejecta from Dimorphos after the DART Impact. *Nature*, 1-3. doi: [10.1038/s41586-023-05852-9](https://doi.org/10.1038/s41586-023-05852-9)
- Buie, M. W., Keeney B. A., ..., **Peluso, D.** (2021). Size and Shape of (11351) Leucus from Five Occultations. *The Planetary Science Journal*, 2(5), 202. doi:[10.3847/psj/ac1f9b](https://doi.org/10.3847/psj/ac1f9b)
- Dalba, P. A., Kane, S. R., ..., **Peluso, D.** (2021). Giant Outer Transiting Exoplanet Mass (GOT 'EM) Survey. II. Discovery of a Failed Hot Jupiter on a 2.7 Yr, Highly Eccentric Orbit*. *The Astronomical Journal*, 162(4), 154. doi:[10.3847/1538-3881/ac134b](https://doi.org/10.3847/1538-3881/ac134b)

Abstracts & White Papers

- Peluso, D. O.**, Megowan-Romanowicz, C., Pennypacker, C., Marchis, F., ... & Sgro, L. Astronomy Modeling Instruction with Exoplanets & the Unistellar Telescope Network. In *AGU Fall Meeting 2023*. AGU. Abstract ID: 1251176. Paper Number: ED13A-03.
- Esposito, T., Avsar, A., Marchis, F., Dalba, P., & **Peluso, D.** (2022). Hot and Cold Jupiters: Exoplanet Transit Results from the Unistellar Citizen Scientist Network. In *American Astronomical Society Meeting Abstracts* (Vol. 54, No. 6, pp. 339-07).
- Marchis, F., Esposito, T., Blaclard, G., Asencio, J., Klavans, V., **Peluso, D. O.**, ... & Carter, B. (2022). Citizen Science and Scientific Results from the World's Largest Network of Backyard Astronomers. *Authorea Preprints*.
- Esposito, T. M., Avsar, A., **Peluso, D. O.**, Marchis, F., Santana, P., Klavans, V., & Nachury, L. (2021). TESS Planet Candidate Follow-up by Citizen Scientists in the Global Unistellar eVscope Network. In *Posters from the TESS Science Conference II (TSC2)* (p. 155).
- Marchis, F., **Peluso, D.**, Esposito, T., Megowan-Romanowicz, C., Pennypacker, C., & Unistellar Science Team. (2021). A Large Citizen Science Astronomy Network for All of Us. In *American Astronomical Society Meeting Abstracts* (Vol. 53, No. 1, pp. 412-06).
- Esposito, T. M., Marchis, F., **Peluso, D.**, Avsar, A., & Zellem, R. T. (2021). Transiting Exoplanet Followup by Citizen Scientists with the Global Unistellar eVscope Network. In *American Astronomical Society Meeting Abstracts* (Vol. 53, No. 1, pp. 239-03).
- Marchis, F., Esposito, T., Asencio, J., Demuys, I., **Peluso, D.**, ... & Nachury, L. (2020). First Results With a Network of Small Digital & Smart Telescopes: Citizen Science For Astronomy. In *AAS/Division for Planetary Sci. Meeting Abstracts* (Vol. 52, No. 6, pp. 413-02).
- Marchis, F., Esposito, T., Asencio, J., Demuys, I., **Peluso, D.**, ... & Nachury, L. (2020). Enabling and Empowering Citizen Science in Astronomy With a Network of Small Digital & Smart Telescopes. In *AGU Fall Meeting Abstracts* (Vol. 2020, pp. ED025-06).
- Marchis, F., **Peluso, D.** *Unistellar and its Largest Citizen Science Astronomy Network: From Planetary Defense to Exoplanet Transits*. SPIE. Astronomical Telescopes + Instrumentation. Paper No. AS103-48 submitted for June 2020 conf, Yokohama, Japan.
- Marchis, F., Arbouch, E., **Peluso, D.**, Harman, P., ... & Veres, P. (2019). Citizen Science Astronomy with the Unistellar Network: From Planetary Defense to Exoplanet Transits. In *AGU Fall Meeting 2019*. AGU. Abstract ED14A-03.
- Peluso, Daniel O.** and Balta, J. Brian. (2016) *Rare Earth Element Variations in Recharging Martian Magma Chambers: Impact on Shergottite Compositions*. 47th Lunar & Planetary Sci. Conference. Abstract #1789.
- Peluso, D. O.**, Bean, A., Rose, K., et al. *Geoscience Collection Management Systems: A Beginners Guide*. NETL-TRS-7-2016. U.S. Dept. of Energy, National Energy Technology Laboratory: Pittsburgh, PA, 2016.
- Bean, A., **Peluso, D. O.**, Rose, K., et al. *Assessment of & Recommendations for Management of NETL's Physical and Digital Geo-Sample Assets*. NETLTRS-5-2016. U.S. Dept. of Energy, National Energy Technology Laboratory: Pittsburgh, PA, 2016.

Teaching Experience

Astronomy Instructor Napa Valley Community College	Expected Start Date in Jan. 2024
Astrophysics Teacher Griffin Academy	2023 - Present
Astronomy Modeling Instruction with Exoplanets American Modeling Teachers Association University of Pacific [Graduate Level]	2022 - Present
Physics Teacher Mare Island Technology Academy	2018-2020

Mentoring Experience

Alex Schulz, University of Geneva	08/2022 - Present
Topic: NASA Exoplanet Watch follow-up observations in prep for student first-author JAAVSO paper submission	
Hanna Johnson, Deer Valley High School	07/2023 - Present
Topic: Citizen science (exoplanets) with the Unistellar network	
Jeff Zhou, Waldorf High School	01/2023 - 06/2023
Topic: Citizen science with the Unistellar network. Artifact	

Computer Skills

Languages: Python, Jupyter notebooks, LaTeX, HTML

Methods: MCMC, Bayesian inference/analysis, Chi-squared tests, time-series analysis, transit photometry, radial velocity measurements, light curve analysis, data reduction and image processing

Software: DS9, JS9, MATLAB, Slack, Adobe Professional Suite, Final Cut Pro, Maya, Microsoft Office Suite, Pro Tools, Logic Pro X

Contributed Talks

Peluso, D. O., et al. (12/2023). *Astronomy Modeling Instruction with Exoplanets & the Unistellar Telescope Network*. American Geophysical Union (AGU). San Francisco, CA, USA.

Peluso, D.O. et al. (9/2023). *Improving Competency, Motivation, & Engagement in Teachers & Students with Astronomy Modeling Instruction with Exoplanets*. NSF NOIRLab Fall 2023 Project ASTRO Workshop. Tucson, AZ, USA. [Remotely Given]

Peluso, D.O. et al. (8/2023). *Citizen Science Exoplanet Detections with the Unistellar Network and Improving K-12 Science Education with the Astronomy Modeling Pedagogy*. Global Hands-on Universe Conf.. Kagoshima, Japan. [Remotely Given]

Peluso, D.O. et al. (7/2023). Peluso, D.O. (8/2023). *Citizen Science Exoplanet Detections with the Unistellar Network and Improving K-12 Science Education with the Astronomy Modeling Pedagogy*. Chabot Space & Science Center. Oakland, CA, USA.

Peluso, D.O. et al. (7/2023). *Improving Competency, Motivation, & Engagement in Teachers & Students with Astronomy Modeling Instruction with Exoplanets*. American Assoc. of Physics Teachers Conf. Summer 2023. Sacramento, CA, USA. Abstract ID 9101.

Peluso, D.O. et al. (6/2023). *Citizen Science Exoplanet Detections with the Unistellar Network and Improving K-12 Science Education with the Astronomy Modeling Pedagogy*. Colloquial Talk, University of Southern Queensland. Toowoomba, Australia.

Peluso, D.O. et al. (8/2022). *The Unistellar Citizen Science Exoplanet Network: Early Results and Prospects for Future Growth in Education and Citizen Science*. Global Hands-on Universe Conference. Global virtual conference.

Peluso, D.O. et al. (8/2020). *Expanding Exoplanet Research: Student Inquiry-Based Citizen Science Pedagogy & Networked Telescopes*. Global Hands-on Universe Conference. Global virtual conference.

Peluso, D.O. et al. (6/2020). *Expanding Exoplanet Research: Student Inquiry-Based Citizen Science Astronomy with Unistellar eVsopes*. Colloquial Talk, University of Queensland. Brisbane, Australia. [Remotely Given]

Peluso, D.O. (12/2016). *The Quest for Another Earth*. American Geophysical Union (AGU). San Francisco, CA, USA.

Synergistic Activities & Accomplishments

- Engage public high school students through the "Gee Whiz Astronomy" program, bridging my Vallejo, CA students with peers in Chile, bolstering math and science proficiency among Hispanic students, and fostering global interest in tech careers.
- Feature blog post on astronomy ed. on the **American Astronomical Society** (AAS) Education Blog in December 2022. [LINK](#)
- Led Galaxy Explorer high school students at Chabot Space & Science Center in observation of exoplanet and including them in upcoming published work in major astronomical journal. [BLOG LINK](#)
- Developed several science education and outreach videos featured on the [SETI Institute's YouTube channel](#)
- Guest on the American Modeling Teachers Association (AMTA) Science Modeling Talks podcast in **2020** and **2022**
- Guest on **Neil deGrasse Tyson's** new **StarTalk** spin-off show, StarTalk All-Stars, to discuss science education and astrobiology with **Dr. David Grinspoon** (episode, [Are You Smarter Than an 8th Grader](#), aired 1 Feb. 2017)
- Award winning self-produced and written exoplanet science documentary, *The Quest for Another Earth*, featured at international science conferences.
- Secured rights to feature music of internationally known rock group, **Muse**, in self-produced video of the International Space Station (ISS) transiting the Moon. The video was featured on [Muse's Twitter](#) to over 2.6 million fans worldwide. [VIDEO LINK](#).
- NASA Space Grant** awarded for planetary science research at University of Pittsburgh.
- Invited to write science communication blog posts on the SETI Institute's [Cosmic Diary](#) blog.
- Feature on [SETI Institute's website](#) for capturing the transit of Mercury in Nov. 2019 with the Unistellar eVscope.